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Patent
Attorney's Docket No. 027545-840

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Paul W. DENT

Application No.: 08/999,604

Filed: December 26, 1996

For: CALLING CHANNEL IN A CDMA
COMMUNICATIONS SYSTEM



BOX AF

Group Art Unit: 2731

Examiner: W. Luther

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REQUEST FOR RECONSIDERATION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action dated September 12, 2000, the period for response has been extended from December 12, 2000 until January 12, 2001 by the concurrent filing of a request for two month extension of time and payment of the appropriate fee.

Presently, claims 1-44 are pending. Favorable reconsideration, and allowance of the subject application are respectfully requested in view of the following remarks.

Initially, Applicant notes with appreciation the Examiner's indication that claims 1-29, 31, 32, 37, 38, 43 and 44 are allowed over prior art of record. However, the remaining claims are also believed to be allowable in light of the documents relied upon by the Examiner.

Rejections under 35 U.S.C. § 112, first paragraph

Claims 33-36, 39, 40 and 42 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. This rejection is respectfully traversed.

Specifically, claims 33 and 39 have been rejected on this ground because the independent claim 33 recites "means for decoding said received signal in said mobile station to extract said control information" and "means for decoding said radio frequency signal in said mobile station to extract traffic information intended for said mobile station." Moreover, it is alleged that the original written description did not teach separated means for each of the claimed elements. It is respectfully submitted that, as indicated in the responses filed on February 24, 2000 and June 8, 2000, each of the claimed elements is indeed described in the original specification. For example, Applicant discloses, starting in column 5, line 10:

"The digitized complex vector components are applied to a bank of correlators 51 along with signals produced by a local code generator 52 corresponding to the traffic channel code and calling channel codes... The correlators 51 extract the underlying information modulated on each CDMA signal and transfer the information from detecting calling channels to a control processor 53... Traffic data extracted by the correlator 51 for the traffic channel can be used in for example, a digital speech decoder."

Applicant respectfully submits that the level of skill in this art is more than adequate to enable one skilled in the art to realize that some of the bank of correlators are utilized to receive the calling channel codes and to extract the control information from the calling

channel while some of the bank of correlators are utilized to receive the traffic channel code and to extract the traffic information based on the originally filed specification. Certainly the Office cannot reasonably support the position that the original disclosure does not convey the described separated means for each of the claimed elements and that the inventor, at the time the application was filed, did not have possession of the claimed invention. Thus, it is respectfully submitted that all of the elements, set forth in claims 33 and 39, are described in the specification in the manner required by 35 U.S.C. § 112, first paragraph. Accordingly, reconsideration and withdrawal of this 35 U.S.C. § 112, first paragraph rejection to claims 33 and 39 are respectfully requested.

Regarding claims 34-36, 40 and 42, they have been rejected on this ground because each of the independent claims 34 and 35 recites "means for assigning said mobile station to a subgroup of data blocks to be transmitted on a calling channel" and "means for encoding said subgroup of data blocks using a spread spectrum code assigned to said calling channel." Moreover, it is alleged that the original written description did not teach separated means for each of the claimed elements. It is respectfully submitted that, as indicated in the responses filed on February 24, 2000 and June 8, 2000, each of the claimed elements are indeed described in the original specification. For example, Applicant discloses, starting in column 6, line 34:

"The calling channel transmission has a multiplexed data format which is divided into data blocks of roughly 20 millisecond durations...The 20 ms data blocks are further sub-multiplexed between common data broadcasts for all mobile stations and data addressed to limited subgroup of mobiles. The subgroup to which a mobile station belongs is determined by the mobile stations mobile identification code. For example, 10 subgroups could be defined by using the last decimal digit of the

telephone number of the mobile station as the mobile identification code... When the network initiates a call to a mobile station, it places the message in the corresponding block."

In addition, Applicant further discloses in column 6, starting on line 58:

"Data bits for each traffic signal or the calling channel are grouped into groups of seven and applied to a 128 bit orthogonal Walsh code generator"

Furthermore, Fig. 6 illustrates that data bits for calling and traffic channels are first assigned into groups of 7 bits data words and sequentially inputted to the Walsh code generator 60 for encoding using a spread spectrum code.

Applicant respectfully submits that the level of skill in this art is more than adequate to enable one skilled in the art to realize that the means for assigning the mobile station to a subgroup of data block is separated from the means for encoding the subgroup of data blocks to the calling channel based on the originally filed specification. Certainly the Office cannot reasonably support the position that the original disclosure does not convey the described separated means for each of the claimed elements and that the inventor, at the time the application was filed, did not have possession of the claimed invention. Thus, it is respectfully submitted that all of the elements, set forth in claims 34-36, 40 and 42, are described in the specification in the manner required by 35 U.S.C. § 112, first paragraph. Accordingly, reconsideration and withdrawal of this 35 U.S.C. § 112, first paragraph rejection to claims 34-36, 40 and 42 are respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 30 and 41 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Gilhousen et al.* (U.S. Patent No. 5,103,459) in view of *Nguyen* (U.S.

Patent No. 5,230,084). This rejection is respectfully traversed. Prior to discussing this ground of rejection, a brief summary of Applicant's novel apparatus for paging a mobile station in a CDMA system will be described to highlight some of the advantageous characteristics thereof.

Exemplary embodiments of the present invention are able to utilize a specific format of data which is broadcast by the calling channel to enable idle mobile to predict when paging messages addressed to them are likely to be broadcast. Specifically, the calling channel transmission has a multiplexed data format which is divided into data blocks of roughly 20 millisecond durations. The duration of data blocks is deliberately made to equal to the duration of the analysis period of the digital speech encoder used for sending speech on the traffic channels. The 20 ms data blocks are further sub-multiplexed between common data broadcasts for all mobile stations and data addressed to limited subgroups of mobiles. The subgroup to which a mobile station belong is determined by the mobile stations mobile identification code. Thereby, when the network initiates a call to a mobile station, it places the message in the corresponding 20 ms block to the subgroup. As a result, a mobile station knows that it only needs to listen for calls in its assigned 20 ms time slot out of the cycle.

Turning now to the claims, for example, claim 30 recites:

**A method for paging a mobile station in a code division multiple access communication system comprising the steps of:
assigning said mobile station to a subgroup of data blocks to be transmitted on a calling channel;
encoding said subgroup of data blocks using a spread spectrum code assigned to said calling channel; and**

transmitting a paging message to said mobile station in only said subgroup.

In paragraph 5 of the Office Action, *Gilhousen et al.* in view of *Nguyen* is asserted to render the claimed invention unpatentable. As correctly acknowledged by the Examiner in paragraph 4 of paper no. 9, *Gilhousen et al.* fails to teach or suggest the recited assigning of a mobile unit to a subgroup of data blocks and transmitting paging messages to the mobile unit in only the subgroup. Noting the deficiencies of *Gilhousen et al.* in this regard, *Nguyen* is cited as allegedly teaching the missing features of *Gilhousen et al.* Applicant respectfully submits that *Nguyen* fails to remedy the deficiencies of *Gilhousen et al.* described above. Because *Nguyen* is directed to an entirely different type of communication system having different transmission format from *Gilhousen et al.*, the teaching of *Nguyen* is not combinable with the teaching of *Gilhousen et al.* in a manner which would have motivated one of ordinary skill in the art to have arrived at Applicant's claimed combinations.

Gilhousen et al. is directed to methods for generating signal waveforms in a CDMA cellular telephone systems. In contrast, *Nguyen* teaches power savings in a conventional selective call signaling protocol, i.e., POCSAG protocol, in pager systems. See column 2, line 55 - column 3, line 5. Since the pager messages of *Nguyen* is in the POCSAG format and POCSAG is a frequency division multiple access approach based on simplex binary frequency shift keying (BFSK), the teaching of *Nguyen* is therefore inapplicable in the code division multiple access context of *Gilhousen et al.* Thus, *Nguyen* teaches an entirely different type of communication system having different transmission format and the

teaching of *Nguyen* is not compatible with the teaching of *Gilhousen et al.* Therefore, absent the teachings of the present invention, the techniques of *Nguyen* cannot be successfully utilized in a code division multiple access system such as that described in *Gilhousen et al.*

For at least the foregoing reasons, Applicant respectfully submits that the *Gilhousen et al.* in view of *Nguyen* could not have rendered independent claim 30 unpatentable. Since claim 41 depends on independent claim 30, it is respectfully submitted that claim 41 is also patentable in view of the cited references. In addition, claim 41 is allowable for the following reasons.

The above described calling channel transmission format of the present invention has further advantages. By virtue of setting the duration of the calling channel data block equal to the duration of the speech coder analysis period, speech data frame synchronization is already available in the mobile station at call setup by simply monitoring the calling channel.

For example, claim 41 recites:

A method according to claim 30, further comprising the steps of:
powering up parts of a receiver in said mobile station during transmission of the subgroup of data blocks and powering down said parts of the receiver at other times;
receiving the subgroup of data blocks at the mobile station;
using the received subgroup of data blocks to synchronize the mobile station with the code division multiple access system; and
detecting the paging messages at the mobile station.

In contrast, *Gilhousen et al.* does not teach or suggest using the received subgroup of data blocks to synchronize the mobile station with the CDMA system. The mobile

station of *Gilhousen et al.* constantly monitors the pilot signal transmission. Upon acquisition of the strongest pilot signal, i.e., initial synchronization of the mobile unit with the strongest pilot signal, the mobile station then searches for the synchronization channel transmitting a broadcast message intended for all mobiles in the system. See column 6, lines 9-20. As soon as a sync channel message on the synchronization channel has been correctly received, the mobile station has the ability to synchronize to either a paging channel or a voice channel. See column 20, lines 30-40 and column 35, lines 49 - 63. Hence, *Gilhousen et al.* teaches utilizing the broadcast sync word on the synchronization channel to synchronize with the CDMA system and fails to teach or suggest using the received subgroup of data blocks to synchronize the mobile station with the CDMA system as set forth, among other features, in Applicant's claimed combinations.

Similarly, *Nguyen* does not teach or suggest using the received subgroup of data blocks to synchronize the mobile station with the CDMA system. The frequency modulated pager receiver of *Nguyen* first detects a preamble on the channel and then to detect the sync code word. When the synchronization code word is detected, a clock of a timer is synchronized. See column 6, lines 13-51. Therefore, *Nguyen* also teaches using the broadcast sync word to synchronize with the system and fails to teach or suggest using the received subgroup of data blocks to synchronize the mobile station with the CDMA system as set forth, among other features, in Applicant's claimed combinations. Accordingly, reconsideration and withdrawal of this ground of rejection are respectfully requested.

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Conclusion

In view of all the above, Applicant respectfully submits the present application is in condition for allowance, and prompt notice of the same is earnestly solicited. Should the Examiner have any questions regarding this response or the subject application in general, he or she is invited to contact the undersigned at the number provided below.

Respectfully submitted,

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